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SOUTHERN CIRCLE OF THE BOTANICAL SURVEY OF INDIA

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The Southern Circle of the Botanical Survey of India, which was started on October 10, 1955, is located at Coimbatore and has under its jurisdiction the States of Madras, Andhra Pradesh, Hyderabad, Madhya Pradesh and Vindhya Pradesh (Division of States as before November 1, 1956). On the afternoon of December 31, 1957 the Madras Herbarium located at the Agricultural College & Research Institute, Coimbatore, was taken over by the Southern Circle of the Botanical Survey of India. A plot of two acres of land near the Agricultural College has also been offered to the Botanical Survey of India by the Madras Government for the construction of Regional Herbarium of the Southern Circle. The Survey primarily has three functions: (*i*) Collection and identification of all the plants coming under the jurisdiction of the Circle; (*ii*) the building up of a Regional Herbarium; and (*iii*) the formation of a National Herbarium which will house the "type specimens" and a fully representative collection of plants comprising the flora of India.

Staff

The technical staff consists of one Regional Botanist, one Systematic Botanist, one Scientific Assistant, one Herbarium Assistant, one Artist, two Fieldmen and two Mounters. In view of the recent transfer of the Madras Herbarium and also the rapid expansion of the Southern Circle, it is expected to recruit more staff in the near future.

Unexplored and Under-explored Regions

Before taking botanical survey work detailed studies were made from published literature on the flora of the several regions coming under the Southern Circle of the Botanical Survey of India. Several papers on Systematic Botany and Floras of the regions were consulted and brief abstracts of them were made. Information on the flora of the region was also secured by meeting and consulting a number of forest officers and professors of Botany. With these preliminary studies and information as the basis, a blue print showing the area of operations of the Circle was prepared and on this, the unexplored and under-explored regions were marked out by suitable colours. The unexplored and under-explored regions in the States coming under the purview of the Southern Circle of the Botanical Survey of India are shown in the following table:

Name of State	Unexplored regions	Under-explored regions
Madras	Javadi Hills (North Arcot District). Hulical Reserve Forest (Nilgiri District). Boluvampatti Reserve Forest (Coimbatore District). Courtallam R. F. Singampatti R. F. (Tirunelveli District). Alagar Hills (Madurai District).	Kotagiri and Coonoor (Nilgiri District). Sirumalai Hills (Madurai District). Cumbum valley (Madurai District).
Andhra Pradesh	Erra Malai Hills (Kurnool District). Palkonda Range (Cuddapah District). Vellikonda Range (Nellore District). Kolleru Lake, Eluru (West Godavari District). Gudum and Lumsing areas near Adattigala (E. Godavari District, Vizagpatam District).	The regions round Chirala, Kavali, Narasapur and Anakapalle (Nellore District, E. Godavari District, and Vizagpatam District).
Madhya Pradesh	Several pockets in Vindya range and Pachmari (Nimar District); regions round about Amgaon, Rajnandagaon and Maikala Range (Bhandara District, Drug District, Bilaspur District, and Mandla District). Kanker, Jagdalpur (including Bastar) and Kontai (Bastar District).	Mandla (Mandla District). Bilaspur (Bilaspur District). Ambikapur (Surjuga District). Manpur (Manpur District).
Vindhya Pradesh	Kaimur Hills near Rewa (Rewa District).	...
Hyderabad (Andhra Pradesh)	Yamnigadh Forest, Raichur District.	Pakhal Forest, Warrangal District. Ajanta Hills, Phoolmari and Khuldabad regions, Aurangabad District. Narasapur Forest, Medak District. Sahyadri Parvat, Adilabad District. Rakwigutta Forest, Karimnagar District.

No regions of the Old Hyderabad State can be considered as botanically explored so far.

Southern Circle, Botanical Survey of India, Coimbatore.

MADRAS HERBARIUM—transferred to the Southern Circle, Botanical Survey of India.

Resume of Work

In the year 1956-57, one hundred and twelve intensive plant collection excursions were made in the following unexplored regions of Coimbatore Taluk and the under-explored regions of Nilgiri District, during the several seasons of the year. In Coimbatore Taluk plants were collected from Varapalayam, Kurudimalai (Lampton's Peak), Chinnathadagam, Maruthamalai, Thekkumalai, Vellingiri and Siruvani ; plant exploration was carried round about Kotagiri and Coonoor in the Nilgiri District. During the year 1957-58 exploration work has also been completed in the following unexplored regions: Courtallam, Singampatti, Alagar Hills, Hulical Droog Reserve and Pakkasuramalai ; in addition to this, the mangrove vegetation at Pichavaram and Kolleru lake for the study of aquatic plants, were also undertaken. A preliminary trip was made to Nagpur in the Madhya Pradesh ; in addition to collection work the necessary arrangements for conducting detailed exploration work in the unexplored regions of Madhya Pradesh for the coming year were made. 137 collection trips have been conducted for the year 1957-58, which resulted in a total number of 33,132 specimens.

Collections of plants are extensively made from several habitats and in different stages of growth. The plants are collected in replicates of six ; of these, two sheets are mounted for the Regional Herbarium and two for the Central National Herbarium, Calcutta and the remaining two are intended for exchange purposes. During collection of these plants particular attention is paid to the economically important and medicinal plants. Further taxonomic studies are made with a view to find out the possibility of introduction of new economic and other useful plants which occur wild in the forests.

THE MADRAS STATE HERBARIUM
AGRICULTURAL COLLEGE & RESEARCH INSTITUTE
COIMBATORE

The Madras State Herbarium, located at the Agricultural College & Research Institute, Coimbatore, was recently handed over to the Southern Circle of the Botanical Survey of India on the last day of December, 1957. It has passed through one hundred and eight years of excellent service and is regarded as one of the very good herbariums of our country—the best being the Sibpur Herbarium, now called the Central National Herbarium of the Botanical Survey of India. It was in the fitness of things that the centenary of the Madras State Herbarium was celebrated at the Agricultural College, Coimbatore on August 20, 1954 under the presidency of Dr. A. Lakshmanaswamy Mudaliar, Vice-Chancellor, Madras University.

Origin of Herbarium

The details concerning the birth and growth of this Herbarium in the early years are rather vague. There is no authentic information about the exact date or year when this Herbarium had its origin. There is some evidence to show that Doctor Hugh Cleghorn, the then Professor of Botany, Madras Medical College, established a Herbarium at the Madras Museum. Doctor Cleghorn's specimens bearing the labels of the Madras Museum Herbarium and the year 1853 indicate that the Madras Museum Herbarium was started by about that period. Further the herbarium sheets of Doctor Cleghorn, Doctor Drew and Sir W. Elliot bear the year 1853 under the Madras Museum Herbarium labels. It is these collections that appear to have formed the nucleus of the present Herbarium.

After Doctor Cleghorn, Colonel Beddome became the Conservator of Forests and whenever he had the time and opportunity, he made his contributions to the Herbarium. During 1873-74, the Herbarium was enriched by the purchase of Col. Beddome's Herbarium at a cost of Rs. 1,500/-. The collection contained 2,435 specimens, most of which were rare plants. Further it was between the years 1872-84 when Surgeon George Bidie was the Superintendent of the Museum, that the Botany Section of the Museum was well organised. Bidie not only made plant collections for the Museum but also published a work on medicinal plants. Appreciation of this Herbarium at Kew may be said to have started from this time.

In the year 1874, Prof. M. A. Lawson of the Presidency College, Madras developed another Herbarium. Later, when he was appointed as Government Botanist at Ootacamund, the Herbarium was shifted to Ootacamund. It was found not to thrive there well due to climatic conditions. So it was again brought back to Madras. Dr. A. G. Bourne appears to have made further contributions to this Herbarium. He was for some time acting as Superintendent of the Madras Museum during February 1897 to January 1898. Somewhere during this period or perhaps later the Herbarium organised by Prof. Lawson and the Museum Herbarium got merged. It was this Herbarium that was later on transferred to Coimbatore ; hence it may be said that the Herbarium at Coimbatore had a twin origin.

Transfer of Herbarium to Coimbatore

In March 1897, Mr. K. Rangachari, well-known Botanist of South India became Herbarium Keeper at the Madras Museum Herbarium. He was the only technical assistant and the Museum Herbarium was transferred to the Government Botanist during 1898-99. In 1898, Dr. C. A. Barber came to India to take up the dual appointment of Government Botanist, Madras and the Director of the Botanical Survey of South India on a five-year basis. The Government Botanist's duties were mainly the promotion of the Systematic Botanical Survey of the Presidency.

In 1902 the Madras Agricultural Department was organised when Dr. Barber continued to be Government Botanist at Madras. The Office of the Government Botanist was transferred from Madras to Coimbatore on March 15, 1909 and in June-July of the same year, the Herbarium at the Museum was also shifted to Coimbatore. Since then it is housed at the Agricultural College and Research Institute, Coimbatore under the name of the Madras State Herbarium (also called Madras Herbarium). It may therefore be said that the Herbarium had its birth in Madras in 1853 and its full growth at Coimbatore.

Until 1908, the Madras Herbarium had nearly 40,000 specimens, most of which were from South India. The Herbarium continued to be under Dr. Barber, the Government Botanist till 1912. His collections alone for the Herbarium exceeded 16,700 specimens of wild plants and 4,500 specimens of economic plants and other specimens. He was now appointed as the Government Sugarcane Expert and Mr. K. Rangachari who was the Lecturing Botanist from 1912 to 1923, was in charge of the Herbarium. The late Mr. K. Rangachari is reported to have been a famous born Systematic Botanist. By his constant Botanical Surveys and in particular from Tirunelveli district, he added a wealth of valuable specimens to the Herbarium. From 1923 up to the end of 1957 the administration of the Herbarium was under the hands of such eminent Botanists like—Mr. C. T. Mudaliar, Mr. V. Narayanaswami, Mr. P. S. Jivanna Rao, Mr. K. C. Jacob, Mr. S. N. Chandrasekharan, Mr. C. R. Mudaliar and Mr. T. R. Narayana Iyer. All these have played a very significant role in the growth of this valuable Herbarium, which is well known not only in our country but also abroad.

Thanks to Dr. Barber and the indefatigable efforts to such first rate Botanists like Rangachari, Tadulingam, Jacob and others referred above, the collections in the Herbarium increased enormously. At present the Madras Herbarium contains 95,106 specimens representing the Flora of the Madras Presidency including Mysore, Coorg, Cochin and Travancore along with specimens representing North India, Burma, Malaya, Ceylon and other foreign countries and also of economic and garden plants. The valuable collections of such eminent Botanists like Beddome, Bourdillon, Cleghorn, Drew, Elliot, Gamble, Heyne, Hooker, Thompson, Jowitt, Perrottet, Rottler, Schimid and Wight also add prestige to the Herbarium.

Besides the representative collections of specimens the herbarium has a very good collection of properly labelled carpological specimens. The carpological collection of fruits, particularly those too large to be mounted on herbarium sheet, has been very useful for identification work. There is also a good collection of seeds and indigenous drugs.

A large number of South Indian collections have been authenticated by the authorities at Kew and includes types and co-types of South Indian species.

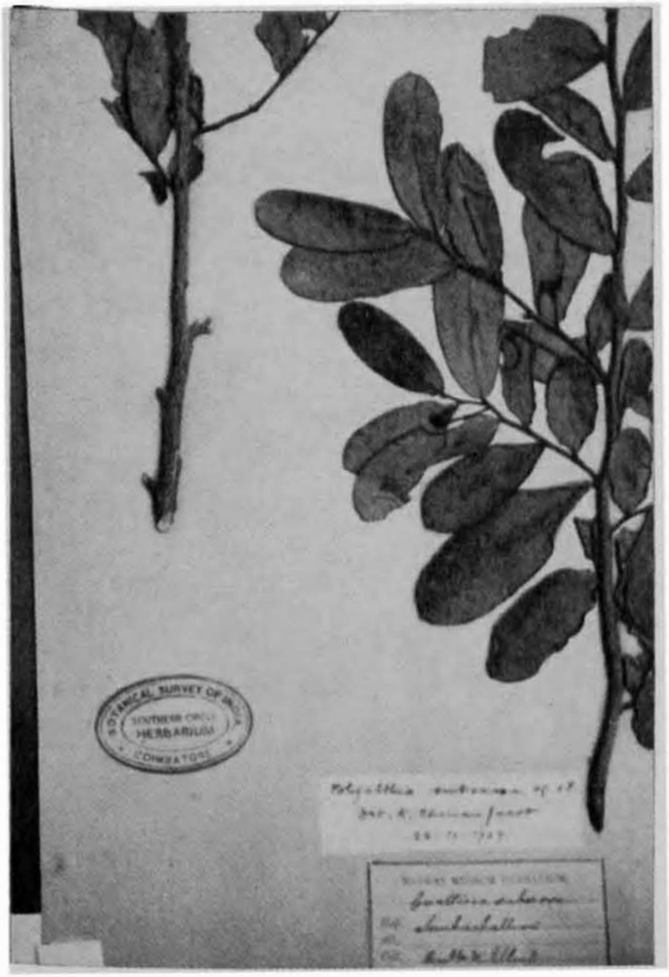
The arrangement of specimens in the Herbarium is done in a scientific and systematic manner closely following the order drawn by Gamble in his Flora of the Presidency of Madras. Under each species, the specimens are arranged in the alphabetical order of the districts so that the distribution of the species could be easily studied from the collections. The North Indian, Burmese, Malayan and Ceylon specimens are arranged in the order of Hooker's Flora of British India ; garden and other exotic collections are classified according to "Genera Plantarum" by Bentham and Hooker. There are also few herbarium specimens of Ferns and their allies and these are arranged as in Beddome's Ferns of British India.

Apart from the Herbarium mentioned above the Southern Circle maintains its own Herbarium wherein the plant collections are arranged according to the system of Bentham and Hooker. A Herbarium of medicinal plants is also maintained separately and the sheets are arranged in an alphabetical order. Carpological collections are also made. 43 coloured paintings of economically important and useful plants have been drawn by the Artist so far and these are maintained in an album. Kodachrome transparencies and Photographs of the plants collected during the exploration work are also properly kept. It is proposed to have a small museum and an experimental garden attached to the Herbarium in due course.

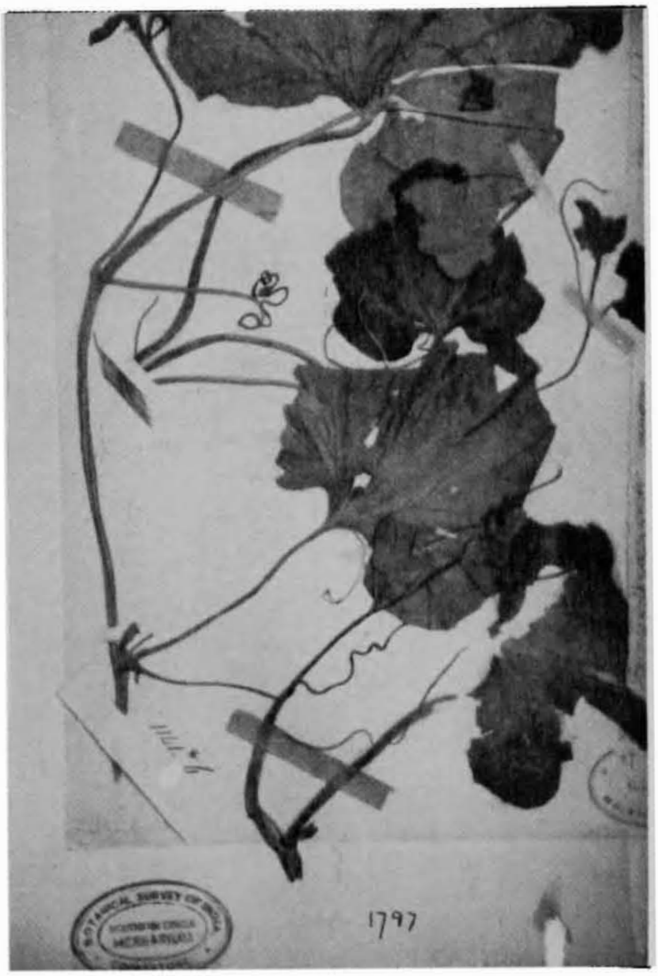
Library

A well-equipped library is attached to the Madras State Herbarium and it contains most of the publications required for reference and study. In the general Library of the Agricultural College and Research Institute, the rare and earlier publications on Systematic Botany as those of Linnaeus, Wildenow, De Candole, Engler and Prantl, Rheede and Rumphius are kept ; they are easily available for reference and study. These are useful not only to the day-to-day worker but also for the researcher in the line.

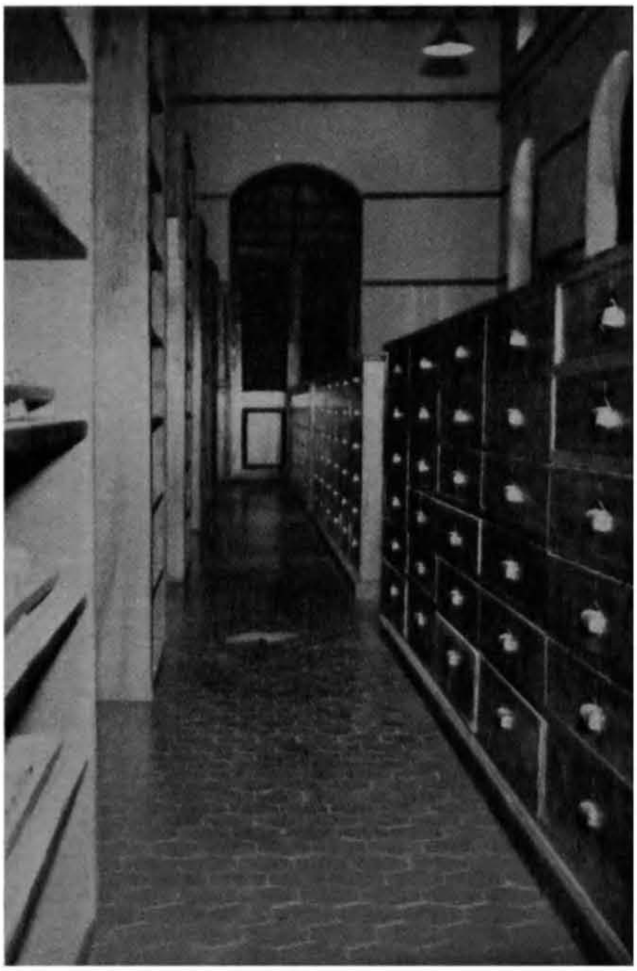
Another Library is being gradually built up for the Southern Circle and a number of Indian and foreign periodicals on Systematic Botany and allied branches are being subscribed for. A reading room where these journals are kept is organised. The Circle also offers facilities to University teachers and students for identification of their plant collections. Provision will also be made for students to carry out post-graduate work leading to M.Sc. and Ph.D. in Taxonomy and closely related subjects. Finally, it is proposed to arrange lectures and short courses, in the rapidly expanding Regional Herbarium, on the methodology of plant exploration and survey, taxonomy and related subjects, with a view to



Polyalthia suberosa Hk.f. & Thoms.
Collected by Dr. Cleghorn (1853) This appears to be the first specimen deposited in the Madras Herbarium. Hence it is called the 'FOUNDATION SPECIMEN'.



Cucumis sp. (October, 1797)
This is the oldest specimen in the Madras Herbarium.



Cases for Carpological specimens.

Work in the Herbarium.

create a zest and interest among the scientists and interested persons for study and research.

Floras & Publications

The most noteworthy and significant part played by the Madras State Herbarium is the publication of—*The Flora of the Presidency of Madras* by J. S. Gamble,—a monumental work on Systematic Botany. Dr. J. S. Gamble of the Forest Department began the compilation of the Flora of Madras Presidency in 1912 and the first part of this was published in 1915. After the death of Gamble, Mr. Fischer continued the work and the eleventh and the last part was completed in 1932. Mr. K. Rangachari with Mr. C. Tadulingam Mudaliar as the joint author took up a systematic study of the South Indian Grasses and this resulted in the publication in 1920 of *Hand-book of some South Indian Grasses.* A study of weeds infesting particularly the crop fields was carried out from the Herbarium and Mr. C. Tadulingam Mudaliar and Mr. G. V. Narayana published the *Hand-book of South Indian Weeds.* A second revised and enlarged edition of this book has recently been published by Mr. C. Rajasekhara Mudaliar and Mr. J. Sakharama Rao. This is a very useful book for the identification of common weeds, especially for the student of the Agricultural Course and the farmer.

In addition to floras and books quite a large number of valuable scientific papers, bulletins and pamphlets have emanated from time to time from the Herbarium on such useful topics like—fodder grasses, soil binders, poisonous plants, weeds and green manure plants. Further from the material available in the Herbarium nearly one hundred new species have been described so far.

Conclusion

The potentialities of the plant wealth, their distribution and proper utilisation can only be known by botanical surveys. It is hoped therefore that this splendid, more than a century-old Madras State Herbarium, which has been recently transferred to the Southern Circle of the Botanical Survey of India, will grow bigger and bigger and stronger and stronger so that it can serve best the needs of our country and gain international usefulness and importance.*

Finally, I wish to thank Dr. J. C. Sen Gupta, Chief Botanist, Botanical Survey of India, for his valuable suggestions and kind encouragement.

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* The following papers have been consulted in the preparation of this article:

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Rajasekhara Mudaliar, C., 1954, Growth of the Madras State Herbarium, *Centenary Souvenir,* 11-21, Madras,